

**APPENDIX P**

# Impact Assessment Table

EMPr Ref. Nr	ACTIVITY whether listed or not listed.	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE In which impact is anticipated	Size and Scale of Disturbance	Magnitude	Duration	Scale	Probability	Significance	Significance without Mitigation	Magnitude	Duration	Scale	Probability	Significance	Significance with Mitigation	Detailed Mitigation Measures	Mitigation Type	Time period for implementation	Standards to be Achieved	Compliance with Standards	Responsible person
<b>Construction Phase</b>																							
<b>Air Quality</b>																							
1.1	Emissions from the construction activities.	Impact on surrounding sensitive receptors due to increased dust and particulate matter.	Ambient air quality	Construction Phase	17 ha	6	2	2	3	30	Moderate	4	2	1	2	14	Low	<ul style="list-style-type: none"> <li>■ Modifying or ceasing loading activities during dry and high wind conditions.</li> <li>■ Avoid double handling of material, where possible.</li> <li>■ Minimising the drop height of the material from truck loads/transfer points. A drop height policy should be maintained on-site and all equipment operators should be trained in the policy such that drop height reduction is implemented during materials handling activities.</li> <li>■ Using water carts with boom sprayers or wet suppression systems.</li> <li>■ The height of existing berms at soil stockpiles must be increased, reducing the impact of winds on the stockpiles.</li> <li>■ Maintaining stockpile moisture levels to avoid further entrainment of particles.</li> </ul>	Minimise and control through impact management and monitoring.	Duration of construction phase	Compliance with NAAQA at the mine boundary.	By implementing dust control measures at significant emission sources, the cumulative ambient particulate load will be reduced.	Gamsberg Zinc Mine Environmental Manager, ECO, appointed business partners
<b>Surface Water</b>																							
2.1	Soil Stripping and stockpiling	Loss of soils through erosion, particularly for topsoil stockpiles with unvegetated steep slopes, resulting in increased sedimentation to water resources.	Downstream water resources	Construction phase	17 ha	8	3	2	4	52	Moderate	4	3	1	3	24	Low		Minimise and control through impact management and monitoring.	Duration of construction phase	Impact avoided Regulation GN 704 for storm water management at mines.	Compliance with GN 704 Implement the proposed mitigation measures to ensure compliance to the WUL conditions.	Gamsberg Zinc Mine Environmental Manager, ECO, appointed business partners

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2.2	Construction of attenuation weir	Increased runoff and erosion in compacted areas and modification of natural infiltration. Soil contamination from chemical spills including sterilisation by cement pollutants.	Downstream water resources	Construction phase		8	3	2	4	52	Moderate	4	3	1	3	24	Low	<ul style="list-style-type: none"> <li>Avoid clearing during the wet season when short heavy downpours can be expected. This should help to limit erosion.</li> <li>Re-use stockpiled soil within as short a period as possible.</li> <li>Ensure adequately designed berms and stormwater collection facilities to capture sediment before water is released into the environment. All stormwater management systems should be compliant with Regulation GN 704; and</li> </ul>	Minimise and control through impact management and monitoring.	Duration of construction phase	Impact avoided  Regulation GN 704 for storm water management at mines.	Compliance with GN 704  Implement the proposed mitigation measures to ensure compliance to the WUL conditions.	Gamsberg Zinc Mine Environmental Manager, ECO, appointed business partners
2.3	Layout of pipeline system	Loss of soils through erosion, particularly when excavating pipeline trenches.	Downstream water resources	Construction phase		8	3	2	4	52	Moderate	4	3	1	3	24	Low	<ul style="list-style-type: none"> <li>Ensure clean-up of hydrocarbon spills from machinery is done immediately, and contaminated soils disposed of to a permitted site.</li> </ul>	Minimise and control through impact management and monitoring.	Duration of construction phase	Impact avoided  Regulation GN 704 for storm water management at mines.	Compliance with GN 704  Implement the proposed mitigation measures to ensure compliance to the WUL conditions.	Gamsberg Zinc Mine Environmental Manager, ECO, appointed business partners
2.4	Vehicles and use of equipment/machinery	Contamination of soils and downstream water resources by chemical pollutants.	Downstream water resources	Construction phase	17 ha	8	3	2	4	52	Moderate	4	3	1	3	24	Low	<ul style="list-style-type: none"> <li>After construction, the land must be cleared of debris, surplus materials, and equipment. All parts of the land must be left in a condition as close as possible to that prior to construction.</li> </ul>	Minimise and control through impact management and monitoring.	Duration of construction phase	Impact avoided  Regulation GN 704 for storm water management at mines.	Compliance with GN 704  Implement the proposed mitigation measures to ensure compliance to the WUL conditions.	Gamsberg Zinc Mine Environmental Manager, ECO, appointed business partners
<b>Soil, land use and land capability</b>																							
3.1	Vegetation clearance, soil stripping and stockpiling during construction of additional infrastructure	Change in surface profile	Soils, land use and land capability	Construction phase	17 ha	6	5	1	3	36	Moderate	6	5	1	3	36	Moderate	No mitigation possible.	N/A	N/A	N/A	N/A	N/A

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3.2	Vegetation clearance, soil stripping and stockpiling during construction of additional infrastructure	Change in land capability	Soils, land use and land capability	Construction phase	17 ha	6	5	1	3	36	Moderate	6	5	1	3	36	Moderate	<ul style="list-style-type: none"> <li>■ Minimise the infrastructure footprint and therefore disturbance to the minimum area necessary by forward planning (clearing land during the dry season rather than wet season) and clear demarcation of the areas to be disturbed.</li> <li>■ Avoid permanently impacting topsoil and subsoil but salvaging the maximum depth of these when clearing areas for infrastructure.</li> <li>■ Avoid mixing topsoil (A-horizon) with subsoil (B-horizon) during stripping and storing of soil (where applicable).</li> <li>■ Ensuring that the overall thickness of the soils utilised for rehabilitation is consistent with surrounding undisturbed areas and future land use (at least grazing land use).</li> </ul>	Minimise and control through impact management and monitoring.	Duration of construction phase	Impact avoided	Conduct land clearance, soil stripping and stockpiling in accordance with the Gamsberg Zinc Mine procedures to reduce the impact on soils in the immediate area.	Gamsberg Zinc Mine Environmental Manager, ECO, appointed business partners

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3.3	Vegetation clearance, soil stripping and stockpiling during construction of additional infrastructure	Erosion and sedimentation	Soils, land use and land capability	Construction phase	17 ha	2	2	1	3	15	MOI	2	2	1	2	10	MOI	<ul style="list-style-type: none"> <li>■ Implement an effective system of run-off control, where it is required, that collects and safely disseminates run-off water from all hardened surfaces and prevents potential down slope erosion.</li> <li>■ Periodic erosion monitoring to be undertaken in cleared areas.</li> <li>■ Any occurrence of erosion must be attended to immediately and the integrity of the erosion control system at that point must be amended to prevent further erosion from occurring there.</li> <li>■ Retain as much vegetation cover over as much of the site as possible to protect soil from water and wind erosion.</li> </ul> <p>Work should be stopped in land clearance areas during heavy rainfall periods.</p>	Minimise and control through impact management and monitoring.	Duration of construction phase	Impact avoided	Conduct land clearance, soil stripping and stockpiling in accordance with the Gamsberg Zinc Mine procedures to reduce the impact on soils in the immediate area.	Gamsberg Zinc Mine Environmental Manager, ECO, appointed business partners

3.4	Vegetation clearance, soil stripping and stockpiling during construction of additional infrastructure	Loss of topsoil	Soils, land use and land capability	Construction phase	17 ha	4	4	1	3	27	Low	2	4	1	2	14	Low	<ul style="list-style-type: none"> <li>■ Any available topsoil should first be stripped from the entire surface to be disturbed and stockpiled for re-spreading during rehabilitation. The depth of topsoil stripping will be dependent on the specific field conditions.</li> <li>■ It is only in areas where topsoil cannot be retained on the surface during the operational phase, and where the area will be rehabilitated back to veld after decommissioning, that it should be stripped and stockpiled for the duration of the operational phase for re-spreading during decommissioning.</li> <li>■ Topsoil stockpiles must be conserved against losses through erosion by establishing vegetation cover on them.</li> <li>■ During rehabilitation, the stockpiled topsoil must be evenly spread over the entire disturbed surface.</li> <li>■ If there is compaction, either in re-spread topsoil or in areas where topsoil was retained during the operational phase, it must be loosened using appropriate decompaction (ripping) equipment.</li> <li>■ If topsoil has been stockpiled for the duration of the operational phase, re-vegetation is likely to require seeding and / or planting.</li> </ul> <p>Erosion must be carefully controlled where necessary on topsoiled areas.</p>	Minimise and control through impact management and monitoring.	Duration of construction phase	Impact avoided	Conduct land clearance, soil stripping and stockpiling in accordance with the Gamsberg Zinc Mine procedures to reduce the impact on soils in the immediate area.	Gamsberg Zinc Mine Environmental Manager, ECO, appointed business partners
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3.5	Vehicles and use of equipment/machinery	Soil compaction	Soils, land use and land capability	Construction phase	17 ha	6	5	1	3	36	Moderate	4	5	1	3	30	Moderate	<ul style="list-style-type: none"> <li>Soil compaction during construction and decommissioning phases cannot be avoided as heavy machinery will be operational in all areas where disturbance is anticipated.</li> <li>Business partners (in particular heavy machinery) will be restricted to designated areas as defined by the Environmental Department.</li> <li>Tracked vehicles will be utilised in soil clearance activities as per soil stripping and handling procedures.</li> <li>Limit traffic to designated roads.</li> </ul>	Minimise and control through impact management and monitoring.	Duration of construction phase	Impact avoided	Implementing the requirements of GNR. 331. Norms and Standards for Remediation of Contaminated Land & Soil Quality will reduce the impact on soils in the immediate area.	Gamsberg Zinc Mine Environmental Manager, ECO, appointed business partners

3.6	Vehicles and use of equipment/machinery	Soil contamination	Soils, land use and land capability	Construction phase	17 ha	4	4	1	3	27	Low	4	2	1	2	14	Low	<ul style="list-style-type: none"> <li>■ All vehicles and machinery shall be kept in good working order and inspected on a regular basis for possible leaks and shall be repaired as soon as possible if required.</li> <li>■ Repairs shall be carried out in a dedicated repair area only, unless in-situ repair is necessary as a result of a breakdown.</li> <li>■ Drip trays shall at all times be placed under vehicles that require in-situ repairs.</li> <li>■ Drip trays shall be emptied into designated containers only and the contents disposed of at a licenced hazardous material disposal facility.</li> <li>■ Ensure proper handling of hazardous chemicals and materials (e.g., fuel, oil, cement, concrete, reagents, emulsion etc.) as per their corresponding Safety Data Sheets (SDS) and the Gamsberg Zinc Mine spill response procedures.</li> <li>■ Accidental spills (concrete, chemicals, process water, hydrocarbons, ore, waste) need to be reported immediately so that effective remediation and clean-up strategies and procedures can be implemented.</li> </ul> <p>Soil that is contaminated by fuel, chemical or oil spills, for example, from vehicles, or ore spillage at the crusher and coarse ore stockpile area will either be collected to be treated at a</p>	Minimise and control through impact management and monitoring.	Duration of construction phase	Impact avoided	Implementing the requirements of GNR. 331. Norms and Standards for Remediation of Contaminated Land & Soil Quality will reduce the impact on soils in the immediate area.	Gamsberg Zinc Mine Environmental Manager, ECO, appointed business partners
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																		pre-determined and dedicated location, or will be cleaned up and treated in situ, using sand, soil or a suitable absorption medium.					
<b>Biodiversity</b>																							

4.1	Vegetation clearance, soil stripping and stockpiling during construction of additional infrastructure	Direct loss and disturbance of natural habitat and associated flora SCC	Biodiversity	Construction phase	17 ha	8	5	1	5	70	High	4	5	1	2	20	Low	<ul style="list-style-type: none"> <li>To prevent loss of flora of conservation concern beyond the direct disturbance footprint, prior to any vegetation clearing, the development footprints should be clearly marked out with flagging tape/posts in the field. Vegetation clearing should be restricted to the proposed project footprints only, with no clearing permitted outside of these areas.</li> <li>A search and rescue survey for all flora SCC should then be conducted within these marked footprints prior to the commencement of construction to determine the number of potentially impacted plant species of conservation concern. Based on the findings of the survey, clearing and/or relocation permits should be obtained from the relevant authority to clear or rescue and relocate potentially impacted plant SCC.</li> <li>Rescued plants should be relocated to an adjacent area of natural habitat.</li> <li>It is recommended that no large plant specimens should be translocated prior to mining/developing new areas. This has been highly unsuccessful to date with virtually zero survival in transplanted <i>Aloidendron dichotoma</i> and <i>Boscia albitrunca</i> trees observed (Desmet, 2022). As an alternative mitigation</li> </ul>	Minimise and control through impact management and monitoring.	Duration of operational phase	Impact avoided	Implementing the proposed mitigation measures to reduce the impact on flora.	Gamsberg Zinc Mine Environmental Manager, ECO, appointed business partners
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																		measure, the budget that would have been allocated to translocation of large plant specimens should instead be allocated to the purchase of more conservation land as part of the offset so that these species can be conserved in-situ.					
4.2	Vegetation clearance, soil stripping and stockpiling during construction of additional infrastructure	Establishment and spread of alien and invasive species	Biodiversity	Construction phase	17 ha	8	5	1	3	42	Moderate	4	5	1	2	20	Low	<ul style="list-style-type: none"> <li>An alien and invasive species management plan should be developed for the Gamsberg Zinc Mine, which includes details of strategies and procedures that must be implemented on site to control the spread of alien and invasive species, particularly <i>Prosopis</i> sp. A combined approach using both chemical and mechanical control methods, with periodic follow-up treatments informed by regular monitoring, is recommended.</li> </ul>	Minimise and control through impact management and monitoring.	Duration of operational phase	Impact avoided	Implementing the proposed mitigation measures to reduce the impact on flora.	Gamsberg Zinc Mine Environmental Manager, ECO, appointed business partners

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4.3	Vehicles and use of equipment/machinery	Injury and mortality of bird SCC	Biodiversity	Construction phase		4	2	1	3	21	Low	4	2	1	2	14	Low	<ul style="list-style-type: none"> <li>Construction activities should be scheduled to occur outside of the main bird breeding season, in order to minimise the risk of disturbance to breeding/nesting individuals/groups, where possible.</li> <li>Speed limits on the mine should be expanded to construction areas via appropriate signage and enforced on all access roads to proposed new infrastructure locations. Dust suppression activities should also be expanded to include additional road at new infrastructure areas.</li> </ul>	Minimise and control through impact management and monitoring.	Duration of operational phase	Impact avoided	Implementing the proposed mitigation measures to reduce the impact on flora.	Gamsberg Zinc Mine Environmental Manager, ECO, appointed business partners
4.4	Vehicles and use of equipment/machinery	Injury and mortality of reptile SCC	Biodiversity	Construction phase		8	2	1	3	33	Moderate	6	2	1	2	18	Low	<ul style="list-style-type: none"> <li>A search and rescue survey for herpetofauna species should be done immediately in advance of site clearance activities. Any observed individuals should be relocated to nearby areas of natural habitats. Where snakes require relocation, this should be done by a certified snake handler for health and safety reasons.</li> </ul>	Minimise and control through impact management and monitoring.	Duration of operational phase	Impact avoided	Implementing the proposed mitigation measures to reduce the impact on flora.	Gamsberg Zinc Mine Environmental Manager, ECO, appointed business partners
4.5	Vegetation clearance, soil stripping and stockpiling during construction of additional infrastructure	Loss and fragmentation of faunal habitat	Biodiversity	Construction phase	17 ha	4	3	2	3	27	Low	2	3	2	2	14	Low	<ul style="list-style-type: none"> <li>None required</li> </ul>	N/A	N/A	N/A	N/A	N/A

**Paleontological resources**

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5.1	Site clearance during construction of infrastructure	No impacts expected, but chance finds with potentially moderate impacts could occur	Palaeontological resources	Construction phase	17 ha	8	5	1	3	42	Moderate	4	1	1	2	12	Low	<ul style="list-style-type: none"> <li>■ Chance find procedure to be implemented immediately should any heritage resources be unearthed: <ul style="list-style-type: none"> <li>■ Cease all work in the immediate vicinity of the find.</li> <li>■ Demarcate the area with barrier tape or other highly visible means.</li> <li>■ Notify the South African Heritage Resources Authority (SAHRA) immediately.</li> <li>■ Commission an archaeologist accredited with the Association for Southern African Professional Archaeologists (ASAPA) to assess the find and determine appropriate mitigation measures. These may include obtaining the necessary authorisation from SAHRA to conduct the mitigation measures.</li> </ul> </li> <li>■ Prevent access to the find by unqualified persons until the assessment and mitigation processes have been completed.</li> </ul>	Minimise and control through impact management and monitoring.	Duration of construction phase	Impact avoided	By monitoring construction activities and implementing the chance find procedure, damage to heritage resources can be avoided.	Gamsberg Zinc Mine Environmental Manager, ECO, appointed business partners

Heritage resources

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6.1	Site clearance during construction of infrastructure	No impacts expected, but chance finds with potentially moderate impacts could occur	Heritage resources	Construction phase	17 ha	8	5	1	3	42	Moderate	4	1	1	2	12	Low	<ul style="list-style-type: none"> <li>■ Chance find procedure to be implemented immediately should any heritage resources be unearthed: <ul style="list-style-type: none"> <li>■ Cease all work in the immediate vicinity of the find.</li> <li>■ Demarcate the area with barrier tape or other highly visible means.</li> <li>■ Notify the South African Heritage Resources Authority (SAHRA) immediately.</li> <li>■ Commission an archaeologist accredited with the Association for Southern African Professional Archaeologists (ASAPA) to assess the find and determine appropriate mitigation measures. These may include obtaining the necessary authorisation from SAHRA to conduct the mitigation measures.</li> <li>■ Prevent access to the find by unqualified persons until the assessment and mitigation processes have been completed.</li> </ul> </li> </ul>	Minimise and control through impact management and monitoring.	Duration of construction phase	Impact avoided	By monitoring construction activities and implementing the chance find procedure, damage to palaeontological resources can be avoided.	Gamsberg Zinc Mine Environmental Manager, ECO, appointed business partners

Socio-Economic

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7.1	Construction of additional infrastructure	Sustain current employment into the future	Socio-economic	Construction phase	N/A	2	2	2	4	24	Positive	2	2	2	4	24	Positive	None required	N/A	N/A	N/A	N/A	N/A
7.2	Construction of additional infrastructure	Increase economic revenue	Socio-economic	Construction phase	N/A	4	2	2	3	24	Positive	2	2	2	4	24	Positive	None required	N/A	N/A	N/A	N/A	N/A
7.3	Construction of additional infrastructure	Nuisance impacts	Socio-economic	Construction phase	N/A	6	2	2	4	40	Moderate	4	2	2	2	16	Low	Implement suitable mitigation measures for noise and air quality impacts	Minimise and control through impact management and monitoring.	Duration of construction phase	Impact avoided	Implement the proposed mitigation measures to reduce the health and safety risks.	Gamsberg Zinc Mine Environmental Manager, ECO, appointed contractors
<b>Operational Phase</b>																							
<b>Air Quality</b>																							

1.2	Emissions from the coarse ore stockpile, crusher, material handling and storage tanks.	Impact on surrounding sensitive receptors due to increased dust, particulate matter and VOC levels	Ambient air quality	Operational Phase	17 ha	4	3	2	3	27	Low	2	3	1	2	12	Low	<ul style="list-style-type: none"> <li>■ The conveyor belts are cleaned on a regular basis through the use of belt scrapers, washers and or combinations of both. Implementing wet dust suppression sprays at conveyor tip points are also recommended.</li> <li>■ Tasking a team to be responsible for the removal of all deposited dust from machinery, enclosures and conveyors within the crushing plant and tip areas, resulting in less deposited dust available for wind entrainment.</li> <li>■ Deploy a dust sweeper in the plant, capable of collecting all deposited fines, reducing the amount of dust available for wind entrainment.</li> <li>■ Erecting porous wind breaks at the base of screens, crushers and transfer points, approximately 2 m high, completely enclosing the base of the structure. This method will ensure deposited fines from the activity are not entrained by winds. These areas can then be routinely cleaned.</li> <li>■ Wash down the plant areas on a periodic basis via water sprays.</li> <li>■ For the fuel facilities, maintaining stable tank pressure and vapour space: <ul style="list-style-type: none"> <li>■ All tank lines should remain charged (i.e. liquid full), and only emptied for maintenance or product change.</li> <li>■ Coordinating filling and withdrawal</li> </ul> </li> </ul>	Minimise and control through impact management and monitoring.	Duration of operational phase	Compliance with NAAQA at the mine boundary.	By implementing dust and emission control measures at significant emission sources, the cumulative ambient particulate load will be reduced.	Gamsberg Zinc Mine Environmental Manager
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														<p>and tested for accuracy.</p> <ul style="list-style-type: none"><li>■ During fuel tank cleaning, the following should be observed:<ul style="list-style-type: none"><li>■ Tank degassing vapours should be routed to an appropriate emissions control device. Other practices include restricting activities to a season when the potential for ozone formation is reduced or to a time of the day when the potential for ozone formation is less.</li><li>■ Tanks should be periodically inspected internally. An inspection frequency based on the condition of the tank at the previous internal inspection should be established (typically 10 years or less).</li></ul></li><li>■ During the operational phase passive monitoring campaign should be undertaken annually for a minimum of three months during the winter and summer seasons to determine the VOC concentrations liberated in the general vicinity of the operations. If concentrations levels are low, monitoring can stop.</li></ul>					
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Surface Water

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2.5	Vehicles and use of equipment/ machinery	Contamination of soils and downstream water resources from fuel/emulsion spills/ leaks.	Downstream water resources	Operational Phase	17 ha	6	2	2	3	30	Moderate	4	2	1	3	21	Low	<ul style="list-style-type: none"> <li>Fuel tanks and emulsion facilities must be placed in bunded structures, designed with the correct capacity to handle an emergency event.</li> <li>Ensure proper handling of fuel and emulsion as per their corresponding Safety Data Sheets (SDS) and the Gamsberg Zinc Mine spill response procedures.</li> <li>Accidental spills need to be reported immediately so that effective remediation and clean-up strategies and procedures can be implemented.</li> <li>Soil that is will either be collected to be treated at a pre-determined and dedicated location, or will be cleaned up and treated in situ, using sand, soil or a suitable absorption medium.</li> </ul>	Minimise and control through impact management and monitoring.	Duration of operational phase	Regulation GN 704 for storm water management at mines.	Compliance with GN 704 Implement the proposed mitigation measures to ensure compliance to the WUL conditions.	Gamsberg Zinc Mine Environmental Manager
2.6	Channels and pipelines system operations	Sediment depositions in channels causing blockages and deterioration of pipelines.	Downstream water resources	Operational Phase		6	2	2	3	30	Moderate	4	2	1	3	21	Low	<ul style="list-style-type: none"> <li>Design stormwater management facilities to comply with regulation GN 704.</li> <li>Regularly schedule inspection and maintenance of water management facilities, to include inspection of drainage structures and liners for any in channel erosion or cracks. Pipelines should be maintained according to manufacturer's specifications.</li> </ul>	Minimise and control through impact management and monitoring.	Duration of operational phase	Impact avoided	Compliance with GN 704 Implement the proposed mitigation measures to ensure compliance to the WUL conditions.	Gamsberg Zinc Mine Environmental Manager

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2.7	Attenuation weir operations	Potential overflow from the attenuation weir.	Downstream water resources	Operational Phase		6	2	2	3	30	Moderate	4	2	1	3	21	Low	<ul style="list-style-type: none"> <li>Implement the proposed attenuation weir to comply with regulation GN 704 so that it can contain a 1: 50 flood event.</li> </ul>	Minimise and control through impact management and monitoring.	Duration of operational phase	Regulation GN 704 for storm water management at mines.	Compliance with GN 704  Implement the proposed mitigation measures to ensure compliance to the WUL conditions.	Gamsberg Zinc Mine Environmental Manager
<b>Soil, land use and land capability</b>																							
3.7	Movement of vehicles and employees around infrastructure and storage of dangerous goods.	Soil contamination	Soils, land use and land capability	Operational phase	17 ha	6	4	1	3	33	Moderate	4	4	1	2	18	Low	<ul style="list-style-type: none"> <li>Fuel tanks and emulsion facilities must be placed in bunded structures, designed with the correct capacity to handle an emergency event.</li> <li>Ensure proper handling of fuel and emulsion as per their corresponding Safety Data Sheets (SDS) and the Gamsberg Zinc Mine spill response procedures.</li> <li>Accidental spills need to be reported immediately so that effective remediation and clean-up strategies and procedures can be implemented.</li> <li>Soil that is will either be collected to be treated at a pre-determined and dedicated location, or will be cleaned up and treated in situ, using sand, soil or a suitable absorption medium.</li> </ul>	Minimise and control through impact management and monitoring.	Duration of operational phase	Impact avoided	Implementing the proposed mitigation measures to reduce the impact on soils, land use and land capability.	Gamsberg Zinc Mine Environmental Manager
<b>Biodiversity</b>																							
4.6	Dust deposition from WRD	Indirect loss and disturbance of natural habitat and associated flora SCC	Biodiversity	Operational phase	17 ha	6	4	2	3	36	Moderate	4	4	1	3	27	Low	<ul style="list-style-type: none"> <li>Implement dust suppression in the area of the WRD</li> </ul>	Minimise and control through impact management and monitoring.	Duration of operational phase	Impact avoided	Implementing the proposed mitigation measures to reduce the impact on flora.	Gamsberg Zinc Mine Environmental Manager

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4.7	On-site traffic	Spread of alien and invasive species	Biodiversity	Operational phase	17 ha	6	6	2	4	56	Moderate	2	6	1	3	27	Low	<ul style="list-style-type: none"> <li>The alien and invasive species management plan should be implemented. A combined approach using both chemical and mechanical control methods, with periodic follow-up treatments informed by regular monitoring, is recommended.</li> </ul>	Minimise and control through impact management and monitoring.	Duration of operational phase	Impact avoided	Implementing the proposed mitigation measures to reduce the impact on flora.	Gamsberg Zinc Mine Environmental Manager
4.8	On-site traffic	Injury and mortality of fauna SCC	Biodiversity	Operational phase	17 ha	4	6	2	3	36	Moderate	2	6	1	2	18	Low	<ul style="list-style-type: none"> <li>The speed limit on the mine (40 km/h) should be communicated and enforced.</li> </ul>	Minimise and control through impact management and monitoring.	Duration of operational phase	Impact avoided	Implementing the proposed mitigation measures to reduce the impact on fauna.	Gamsberg Zinc Mine Environmental Manager
<b>Socio-economic</b>																							
7.4	Operation of additional infrastructure (contribute to ramped up 10 million ton per annum operation)	Sustain current employment into the future	Socio-economic	Operational phase		2	2	2	4	24	Positive	2	2	2	4	24	Positive	<ul style="list-style-type: none"> <li>None required</li> </ul>	N/A	N/A	N/A	N/A	N/A
7.5	Operation of additional infrastructure (contribute to ramped up 10 million ton per annum operation)	Skills transfer and development	Socio-economic	Operational phase		2	4	2	3	24	Positive	6	4	2	4	48	Positive	<ul style="list-style-type: none"> <li>Ensure transfers of skills and career development for employees in accordance with the Gamsberg Zinc Mine training and development programmes.</li> </ul>	Minimise and control through impact management and monitoring.	Duration of operational phase	N/A	N/A	Gamsberg Zinc Mine Human Resources Manager
7.6	Operation of additional infrastructure (contribute to ramped up 10 million ton per annum operation)	Nuisance impacts	Socio-economic	Operational phase		2	1	3	3	18	Low	2	1	3	2	12	Low	<ul style="list-style-type: none"> <li>Implement suitable mitigation measures for noise and air quality impacts</li> </ul>	Minimise and control through impact management and monitoring.	Duration of operational phase	Impact avoided	Implement the proposed mitigation measures to reduce the health and safety risks.	Gamsberg Zinc Mine Environmental Manager, Health and Safety Manager
<b>Decommissioning and Closure Phase</b>																							
<b>Air Quality</b>																							

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1.3	Emissions from the decommissioning activities.	Impact on surrounding sensitive receptors due to increased dust and particulate matter	Ambient air quality	Decommissioning and closure phase	17 ha	6	2	2	3	30	Moderate	4	2	1	2	14	Low	<ul style="list-style-type: none"> <li>Modifying or ceasing loading activities during dry and high wind conditions.</li> <li>Avoid double handling of material, where possible.</li> <li>Minimising the drop height of the material from truck loads/transfer points. A drop height policy should be maintained on site and all equipment operators should be trained in the policy such that drop height reduction is implemented during materials handling activities.</li> <li>Using water carts with boom sprayers or wet suppression systems.</li> <li>The height of existing berms at stockpiles must be increased, reducing the impact of winds on the stockpile.</li> <li>Maintaining the stockpile moisture level to avoid further entrainment of particles.</li> </ul>	Minimise and control through impact management and monitoring.	During decommissioning and closure phase	Compliance with NAAQA at the mine boundary.	By implementing dust control measures at significant emission sources, the cumulative ambient particulate load will be reduced.	Gamsberg Zinc Mine Environmental Manager, ECO, appointed business partners
<b>Surface Water</b>																							

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2.8	Removal of redundant infrastructure	Spillage of chemical solutions during the dismantling of plant equipment, pipelines and channels which were in contact with chemicals solution may contaminate the soils; Spillage of diesel, oils, and greases from the dismantled plant equipment, resulting in hydrocarbon contamination of exposed soils.	Downstream water resources	Decommissioning and closure phase	17 ha	6	4	3	3	39	Moderate	4	2	1	2	14	Low	<ul style="list-style-type: none"> <li>All pollution control mechanisms are to be in accordance with GN 704, and all necessary pollution control mechanisms must be protected and repaired or established when stockpiles or residue deposits are reclaimed, removed, or rehabilitated so that water pollution is minimized and abated.</li> </ul>	Minimise and control through impact management and monitoring.	During decommissioning and closure phase	Regulation GN 704 for storm water management at mines.	Compliance with GN 704 Implement the proposed mitigation measures to ensure compliance to the WUL conditions.	Gamsberg Zinc Mine Environmental Manager, ECO, appointed business partners
2.9	Grading of the project site to ensure long-term drainage conditions on site	Contamination of soils by hydrocarbons, and downstream areas during compaction in areas where active heavy machinery will be mobilised for the shaping of the final landform.	Downstream water resources	Decommissioning and closure phase	17 ha	6	3	2	3	33	Moderate	4	3	2	2	18	Low		Minimise and control through impact management and monitoring.	During decommissioning and closure phase	Regulation GN 704 for storm water management at mines.	Compliance with GN 704 Implement the proposed mitigation measures to ensure compliance to the WUL conditions.	Gamsberg Zinc Mine Environmental Manager, ECO, appointed business partners
2.10	Soil placement and revegetation of project site	Erosion and sedimentation of downstream resources from areas not adequately revegetated.	Downstream water resources	Decommissioning and closure phase	17 ha	6	3	2	3	33	Moderate	4	3	2	2	18	Low		Minimise and control through impact management and monitoring.	During decommissioning and closure phase	Regulation GN 704 for storm water management at mines.	Compliance with GN 704 Implement the proposed mitigation measures to ensure compliance to the WUL conditions.	Gamsberg Zinc Mine Environmental Manager, ECO, appointed business partners
<b>Soil, land use and land capability</b>																							

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3.8	Removal of redundant infrastructure, grading of project site to ensure long-term drainage conditions on site.	Erosion and sedimentation	Soils, land use and land capability	Decommissioning and closure phase	17 ha	2	2	1	3	15	Low	2	2	1	2	10	Low	Same as for construction	Minimise and control through impact management and monitoring.	During decommissioning and closure phase	Impact avoided	Implementation of Rehabilitation standards/objectives and requirements of GNR. 331. Norms and Standards for Remediation of Contaminated Land & Soil Quality will reduce the impact on soils in the immediate area.	Gamsberg Zinc Mine Environmental Manager, ECO, appointed business partners
3.9		Soil contamination	Soils, land use and land capability	Decommissioning and closure phase	17 ha	4	4	1	3	27	Low	4	2	1	2	14	Low	Same as for construction	Minimise and control through impact management and monitoring.	During decommissioning and closure phase	Impact avoided	Implementation of Rehabilitation standards/objectives and requirements of GNR. 331. Norms and Standards for Remediation of Contaminated Land & Soil Quality will reduce the impact on soils in the immediate area.	Gamsberg Zinc Mine Environmental Manager, ECO, appointed business partners
<b>Biodiversity</b>																							
4.9	Removal of redundant infrastructure	Establishment and spread of alien and invasive species	Biodiversity	Decommissioning and closure phase	17 ha	8	5	1	3	42	Moderate	4	5	1	2	20	Low	<ul style="list-style-type: none"> <li>The alien and invasive species management plan should be implemented. A combined approach using both chemical and mechanical control methods, with periodic follow-up treatments informed by regular monitoring, is recommended.</li> </ul>	Minimise and control through impact management and monitoring.	During decommissioning and closure phase	Impact avoided	Implementing the proposed mitigation measures to reduce the impact on flora.	Gamsberg Zinc Mine Biodiversity Manager, ECO, appointed business partners



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4.10	Vehicles and use of equipment/machinery	Injury and mortality of bird SCC	Biodiversity	Decommissioning and closure phase	17 ha	4	2	1	3	21	Low	4	2	1	2	14	Low	<ul style="list-style-type: none"> <li>Decommissioning and rehabilitation activities should be scheduled to occur outside of the main bird breeding season, in order to minimise the risk of disturbance to breeding/nesting individuals/groups, where possible.</li> <li>Speed limits on the mine should be applicable to all demolition areas via appropriate signage and enforced on all access roads.</li> <li>Dust suppression activities should also be expanded to include all roads during decommissioning activities.</li> </ul>	Minimise and control through impact management and monitoring.	During decommissioning and closure phase	Impact avoided	Implementing the proposed mitigation measures to reduce the impact on fauna.	Gamsberg Zinc Mine Environmental Manager & Biodiversity Manager, ECO, appointed business partners
4.11	Vehicles and use of equipment/machinery	Injury and mortality of reptile SCC	Biodiversity	Decommissioning and closure phase	17 ha	8	2	1	3	33	Moderate	6	2	1	2	18	Low	<ul style="list-style-type: none"> <li>A search and rescue survey for herpetofauna species should be done immediately in advance of site clearance activities. Any observed individuals should be relocated to nearby areas of natural habitats. Where snakes require relocation, this should be done by a certified snake handler for health and safety reasons.</li> </ul>	Minimise and control through impact management and monitoring.	During decommissioning and closure phase	Impact avoided	Implementing the proposed mitigation measures to reduce the impact on fauna.	Gamsberg Zinc Mine Biodiversity Manager, ECO, appointed business partners
4.12	Vehicles and use of equipment/machinery	Injury and mortality of fauna SCC	Biodiversity	Decommissioning and closure phase	17 ha	4	6	2	3	36	Moderate	2	6	1	2	18	Low	<ul style="list-style-type: none"> <li>The speed limit on the mine (40 km/h) should be communicated and enforced.</li> </ul>	Minimise and control through impact management and monitoring.	During decommissioning and closure phase	Impact avoided	Implementing the proposed mitigation measures to reduce the impact on fauna.	Gamsberg Zinc Mine Environmental Manager, ECO, appointed business partners
<b>Socio-economic</b>																							

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7.7	Decommissioning of the infrastructure at the closure phase of the mine	Loss of employment	Socio-economic	Decommissioning and closure phase	N/A	6	5	2	4	52	Moderate	4	5	2	4	44	Moderate	<ul style="list-style-type: none"> <li>■ Timely and adequate consultation with employees who are dependent on the mine for employment.</li> <li>■ Assisting employees in seeking alternative employment at other mining operations.</li> <li>■ Training and education of employees to equip them with skills that could benefit them in other industries.</li> <li>■ Implement Closure plan.</li> <li>■ Implement Social and Labour Plan reduce negative impact of mine closure.</li> </ul>	Minimise and control through impact management and monitoring.	Decommissioning and closure phase	N/A	Implement the proposed mitigation measures to reduce the impacts as a result of loss of employment.	Gamsberg Zinc Mine Human Resources Manager



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